Amendments to the Claims

Kindly cancel claims 11-15, 23-27, 29 & 35 without prejudice. All pending claims are reproduced below.

1. (Previously Presented) A method of halftoning comprising:

receiving input data comprising a first plurality of pels having a first plurality of intensities, wherein said first plurality of intensities (Iin) are chosen from K intensity levels;

converting the first plurality of pels having said first plurality of intensities into a second plurality of pels having a second plurality of intensities, wherein said second plurality of intensities (Iout) are chosen from L intensity levels, where $L < K$, and wherein the number of pels of the first plurality of pels is equal to the number of pels of the second plurality of pels;

wherein at least some pels of said second plurality of pels are grouped into at least one basic cell, each basic cell comprising n pels of said second plurality of pels; and

wherein a maximum number of densities per each basic cell is greater than $(1 + n\times(L-1))$ for a full range of constant input intensities (0 to K) (Iin), and each said intensity out (Iout) is chosen without reference to an intensity out of a neighboring pel and n pels of the first plurality of pels contribute to the output intensities of the n pels within each basic cell.

2. (Original) The method of claim 1, further comprising employing said second plurality of intensities (Iout) to place dots within each basic cell, wherein adjacent dots overlap within said basic cell.

3. (Original) The method of claim 2, further comprising producing said dots using a bilevel output device, wherein $L = 2$.

4. (Original) The method of claim 2, further comprising producing said dots using a multilevel output device, wherein L > 2.

5. (Original) The method of claim 2, further comprising producing said dots using a color output device, and wherein a subset of said second plurality of pels comprises one of multiple color components.

6. (Original) The method of claim 5, wherein said color output device comprises a bilevel output device, wherein L=2.

7. (Original) The method of claim 5, wherein said color output device comprises a multilevel output device, wherein L>2.

8. (Original) The method of claim 1, wherein said converting comprises point-wise thresholding using multiple threshold matrices to convert said first plurality of pels into said second plurality of pels without considering a neighboring pel.

9. (Original) The method of claim 8, wherein the multiple threshold matrices comprise a plurality of binary threshold matrices the outputs of which can be combined to produce an output image.

10. (Original) The method of claim 9, wherein the combination of outputs of the plurality of binary threshold matrices is accomplished with an exclusive OR operation.

11-15. (Canceled).

16. (Previously Presented) A system for halftoning comprising:

means for receiving input data comprising a first plurality of pels having a first plurality of intensities, wherein said first plurality of intensities (Iin) are chosen from K intensity levels;

means for converting the first plurality of pels having said first plurality of intensities into a second plurality of pels having a second plurality of intensities, wherein said second plurality of intensities (Iout) are chosen from L intensity levels where $L < K$, and wherein the number of pels of the first plurality of pels is equal to the number of pels of the second plurality of pels;

wherein at least some pels of said second plurality of pels are grouped into at least one basic cell, each basic cell comprising n pels of said second plurality of pels; and

wherein a maximum number of densities per each said basic cell is greater than $(1 + n\times(L-1))$ for a full range of constant input intensities (0 to K) (Iin), and each said intensity out (Iout) is chosen without reference to an intensity out of a neighboring pel and n pels of the first plurality of pels contribute to the output intensities of the n pels within each basic cell.

17. (Original) The system of claim 16, further comprising means for employing said second plurality of intensities (Iout) to place dots within each basic cell, wherein adjacent dots overlap within said basic cell.

18. (Original) The system of claim 17, further comprising means for producing said dots using a bilevel output device, wherein $L = 2$.

19. (Original) The system of claim 17, further comprising means for producing said dots using a multilevel output device, wherein $L > 2$.

20. (Original) The system of claim 17, further comprising means for producing said dots using a color output device, and wherein a subset of said second plurality of pels comprises one of multiple color components.

21. (Original) The system of claim 20, wherein said color output device comprises one of a bilevel output device or a multilevel output device.

22. (Original) The system of claim 16, wherein said means for converting comprises means for point-wise thresholding using multiple threshold matrices to convert said first plurality of pels into said second plurality of pels without considering a neighboring pel.

23-27. (Canceled).

28. (Previously Presented) A halftoning apparatus comprising:

at least one computing unit adapted to:

receive input data comprising a first plurality of pels having a first plurality of intensities, wherein said first plurality of intensities (Iin) are chosen from K intensity levels;

convert a first plurality of pels having said first plurality of intensities into a second plurality of pels having a second plurality of intensities, wherein said second plurality of intensities (Iout) are chosen from L intensity levels wherein $L < K$, and wherein the number of pels of the first plurality of pels is equal to the number of pels of the second plurality of pels;

wherein at least some pels of said second plurality of pels are grouped into at least one basic cell, each basic cell comprising n pels of said second plurality of pels; and

wherein a maximum number of densities per each said basic cell is greater than (1 + n×(L-1)) for a full range of constant input intensities (0 to K) (Iin), and each said intensity out (Iout) is chosen without reference to an intensity out of a neighboring pel and n pels of the first plurality of pels contribute to the output intensities of the n pels within each basic cell.

29. (Canceled).

30. (Previously Presented) A machine-readable medium having stored thereon data representing sequences of instructions, the sequences of instructions which, when executed by a processor, cause the processor to:

receive input data comprising a first plurality of pels having a first plurality of intensities, wherein said first plurality of intensities (Iin) are chosen from K intensity levels;

convert a first plurality of pels having said first plurality of intensities into a second plurality of pels having a second plurality of intensities, wherein said second plurality of intensities (Iout) are chosen from L intensity levels wherein L < K, and wherein the number of pels of the first plurality of pels is equal to the number of pels of the second plurality of pels;

wherein at least some pels of said second plurality of pels are grouped into at least one basic cell, each basic cell comprising n pels of said second plurality of pels; and

wherein a maximum number of densities per each said basic cell is greater than (1 + n×(L-1)) for a full range of constant input intensities (0 to K) (Iin), and each said intensity out (Iout) is chosen without reference to an intensity out of a neighboring pel and n pels of the first plurality of pels contribute to the output intensities of n pels within each basic cell.

31. (Original) The machine-readable medium of claim 30, wherein the sequences of instructions further include instructions which, when executed by the processor, cause the processor to employ said second plurality of intensities (Iout) to place dots within each basic cell, wherein adjacent dots overlap within said basic cell.

32. (Original) The machine-readable medium of claim 31, wherein the sequences of instructions further include instructions which, when executed by the processor, cause the processor to produce said dots using a bilevel output device, wherein L = 2.

33. (Original) The machine-readable medium of claim 31, wherein the sequences of instructions further include instructions which, when executed by the processor, cause the processor to produce said dots using a multilevel output device, wherein L > 2.

34. (Original) The machine-readable medium of claim 30, wherein the sequences of instructions further include instructions which, when executed by the processor, cause the processor to implement point-wise thresholding using multiple threshold matrices to convert said first plurality of pels into said second plurality of pels without considering a neighboring pel.

35. (Canceled).

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